File CRISA

California Ricelands/Wetlands

Conjunctive Use Program

The Nature Conservancy of California

October 1991

D-048229

Summary

California's wetlands have been reduced by almost 90%. Waterfowl populations and populations of other native species dependent on these wetlands have plummeted as a result. Only 60,000 acres of wetlands are reliably protected in public and private refuges and through conservation easements. One of the state's richest and most characteristic landscapes is close to virtual extinction.

Based on directions and principles set forth in a recently completed Strategic Plan, the California Nature Conservancy is initiating a unique conjunctive use program to dramatically increase the amount of useable wetlands, and to create other benefits, in the Sacramento Valley.

The project, which would take advantage of the Valley's 600,000 acres of cultivated rice grounds would:

- create, through flooding, tens of thousands, and ultimately perhaps hundreds of thousands, of acres of de facto winter wetland habitat producing abundant high quality food for waterfowl and other species;
- provide significant and urgent offstream water storage capacity;
- provide for increased carry-over capacity in the state's major reservoirs and provide more and colder water for anadromous fish populations;
- allow for biodegradation of rice stubble as an alternative to pollution-causing burning;
- maintain the social and economic stability of Valley communities.

To begin the program we need to establish a pilot project this winter and to conduct hydrologic and biological investigations. The budget for this effort is $215,000.

Background

The California Nature Conservancy's recently completed Strategic Plan, recognizing the continuing pressures that a rapidly growing population poses to the state's natural landscape, focuses the organization on the preservation of large systems and emphasizes the need to "releverage our work by mobilizing our resources with those of conservation partners". The strategic directions set forth in the plan reflect the notion that "we need not only to expand but to develop new approaches and to bring a broad spectrum of land protection and conservation management techniques to bear on the problem".

Guided by the principles and directions embodied in the strategic plan, we have begun a systematic process to identify the state's major ecosystems and landscape types, and to develop conservation priorities for these features based principally on analyses of diminution in extent and degree of threat. Although the full process will take some time to complete, we have already determined that California's wetlands, particularly in the Central Valley, are an urgent priority. Almost 90% of the Valley's original wetlands have been lost but what remains still provides critical habitat for migratory waterfowl. The Valley provides winter habitat for 20% of all ducks counted in the United States and 50% of all midwinter waterfowl in the Pacific Flyway. The Sacramento Valley alone provides migratory habitat for up to 85% of all waterfowl in the Central Valley and almost 50% of all waterfowl in the Pacific Flyway.

Unfortunately, principally because of habitat loss, overall waterfowl populations in the Central Valley have declined to their lowest recorded levels in the last few years. The average annual total number of ducks in the Central Valley over the last five years has been 1.7 million; the total for geese 380,000 (the population objectives of the Central Valley Joint Venture are 4.7 million ducks and 865,000 geese). Only 60,000 acres of wetlands are securely and reliably protected in existing federal and state refuges and on lands that private hunting clubs have restricted through permanent conservation easements.

In the Spring of 1991, the Conservancy contracted with Marc Reisner, consultant on water issues and author of the widely acclaimed book, Cadillac Desert, to identify and assess new ways in which the Conservancy could significantly accelerate preservation of wetlands. After several months of extensive field work, interviews and other scoping activity, Mr. Reisner proposed that the Conservancy work with California rice growers in the Sacramento Valley to develop a unique conjunctive use program.

The Project Concept

Upwards of 600,000 acres of land in the Sacramento Valley are currently devoted to rice production (annual acreage actually in production fluctuates, depending on water availability and market conditions; in 1991, for example, only 300,000 acres were planted due to low water supplies). These lands are characterized by a virtually impervious hardpan soil, an ideal condition for growing rice because surface irrigation water does not percolate into the ground. Water is spread on the fields in mid-April and drained off fifteen days before harvest, which extends from late summer to early fall, depending on the variety of rice. Ricelands then lay fallow from October until the following April.

The proposed conjunctive use concept envisions dedicating tens of thousands, and possibly hundreds of thousands, of acres of winter-fallow rice grounds for managed wetlands and offstream water storage. Beginning in October or early November, water would be flooded on these lands to a depth of six to eighteen inches, as migratory waterfowl arrive in force and are in urgent need of food and habitat. Most migratory species of ducks and geese are known as "dabblers" and require shallow waters for feeding. The varying depths would also accommodate non-game wetland birds such as egrets (which need very shallow water) and limited numbers of diving ducks (such as canvasbacks and scaup) that prefer water depths over 12 inches.

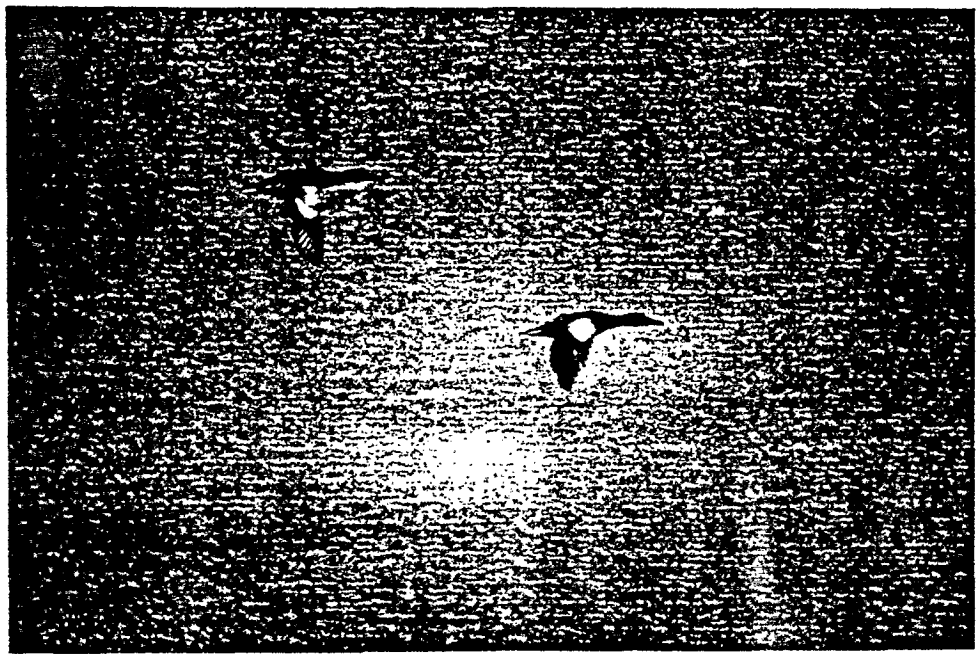
The flooded acreage is expected to produce abundant, high quality food -- especially invertebrates and seed rich water grasses -- that would add enormously to the health and sustenance of birds using these wetlands. The significant increase in usable wetlands would also reduce the risk of waterfowl disease (such as avian cholera and avian botulism) and appreciably improve breeding and laying success rates.

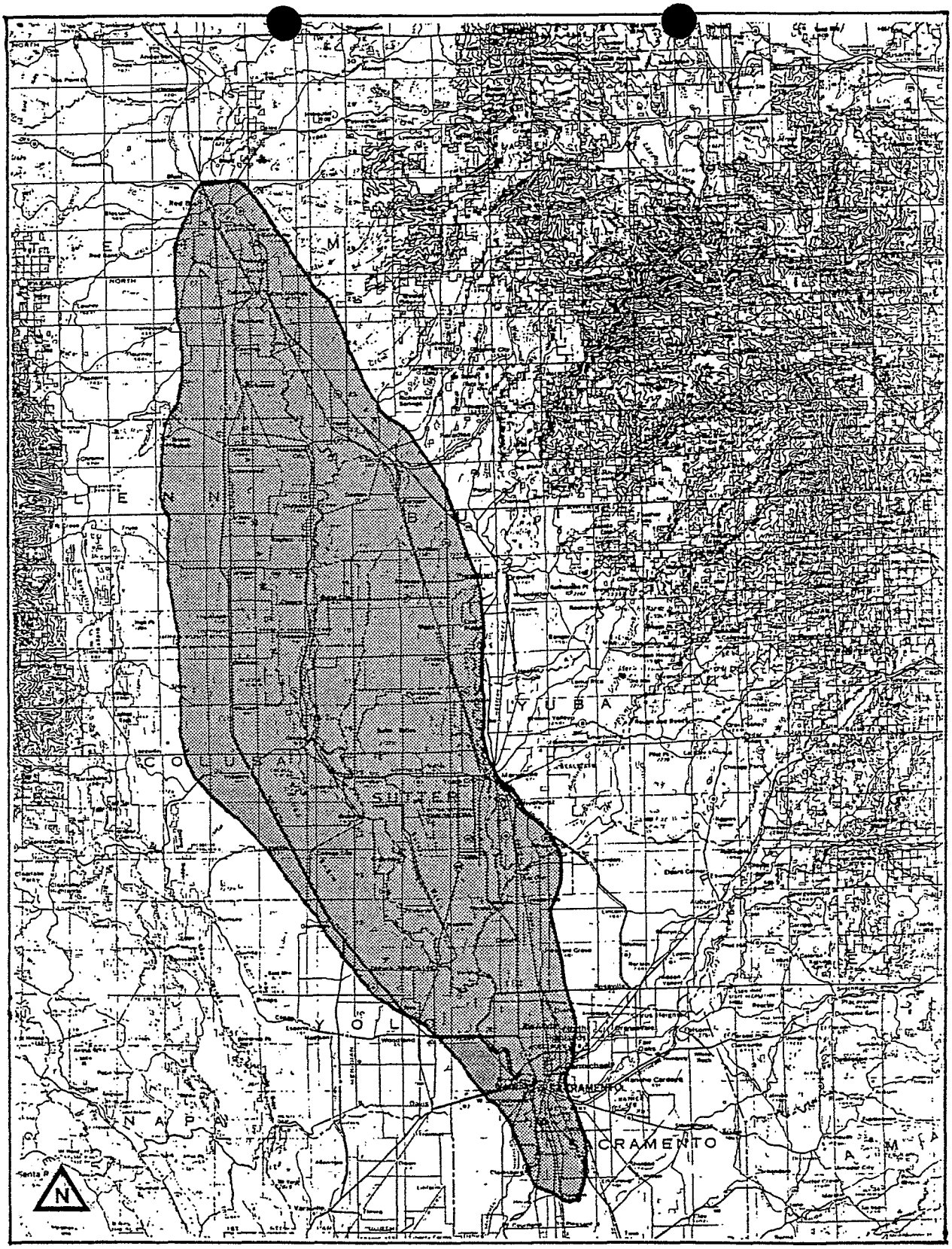
By mid-February, when waterfowl populations have begun to migrate back north and as even more water is available, the conjunctive use project would have the option of further raising water levels (to two to five feet) on some lands for the additional purpose of offstream storage. The State Water Project, administered by the Department of Water Resources, is urgently seeking offstream storage capacity to bring its delivery capability up to projected demand levels without constructing new instream facilities which are both inordinately expensive and environmentally destructive. Other water suppliers -- the federal Central Valley Project and local water districts -- may also be interested in offstream storage. One hundred thousand acres flooded to an average depth of three feet would provide nearly 300,000 acre feet of storage capacity -- enough water for three million or more domestic users.

Water stored offstream would be released back into rivers (principally the Sacramento River) in late March, timed to assist out-migrating Salmon and other anadromous fish in their efforts to reach the open ocean, and to bolster delta water quality standards.

An additional benefit derived from offstream storage is the potential to increase the carry-over capacity of existing reservoirs. If significant offstream storage capacity is made available by flooding ricefields -- and several hundred thousand acre feet becomes significant storage -- then big mainstream reservoirs such as Shasta and Oroville could potentially be relieved of some of their flood control responsibilities. Flood control is assigned by the Corps of Engineers to all major reservoirs as a condition for receiving a permit to build. In general, water supply reservoirs must thus be held at lower levels than their operators regard as ideal because of the inevitability of infrequent but catastrophic floods. Consequently, when Shasta, with 4.5 million acre feet of capacity, reaches a certain level by a certain date -- say three million acre feet in early January -- the Bureau of Reclamation must begin spilling substantial amounts of water so that the reservoir can absorb flood peaks, as happened in 1955, 1964, 1983, and 1986.

If an alternative means of storing flood waters is available, the Bureau could hold more water in Shasta than its Corps permits now allow. That would provide for greater carry-over capacity; it would also keep Shasta water colder for a longer period of time, simply because the water depth would be greater. A fuller, colder reservoir would be beneficial for spawning and out-migrating salmon when good flows and cold water become critical factors in their success.





LEGEND:

Approximate Rice Growing Area

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Project Status and Need

Virtually everyone to whom the project has been described has embraced the idea and believes it has promise. We have developed a strong working relationship with the rice industry leadership which is eager to pursue this concept (see Appendix B letter from Colusa County Farm Bureau). The Department of Water Resources is interested in the idea and has already committed $15,000 to help pursue the investigation. We have also talked with Ducks Unlimited and the Environmental Defense Fund, both of which are supportive and may participate in ultimate implementation of the project.

This fall and winter we plan to establish a pilot project and to conduct hydrologic and biological investigations to provide the practical and scientific underpinnings for a full scale implementation of the concept.

A biological investigation would address such issues as:

- water management criteria for water birds: optimal areas, distribution and depth of water for migratory and resident diving ducks, dabbling ducks, and shore birds, food quality and production requirements;
- water management criteria for rice cultivation: the timing of draining and filling for rice production;
- institutional considerations: authority, expertise and budget needs of potential management entities; land ownership or easement requirements;
- regional environmental management considerations: coordination with wildlife refuges, duck hunting clubs, etc.

A hydrologic study, which would be coordinated and integrated with the biological investigation would address issues such as:

- availability of water for diversion: natural seasonal runoff patterns, upstream reservoir operation, water rights and water bases in the ricefield wetlands;
- Sacramento River instream flow requirements;
- Sacramento River habitat temperature requirements;
- San Francisco Bay estuary inflow requirements;
- diversion and conveyance facilities: those that currently exist and those that would be necessary;

- topography and infrastructure in the ricefields that dictate depth and volume of ponding.

A project coordinator, most likely Marc Reisner, will be hired on contract to work with the rice growers, appropriate public agencies and the consultants who conduct the above investigation. The Coordinator will work under the supervision of staff of the Conservancy.

The Budget for the project is $215,000 (see Appendix A).

Conclusion

This project has the potential for yielding multiple benefits of exceedingly high value at very little cost.

Wetlands are widely recognized as one of California's most urgent and compelling conservation priorities. The proposed conjunctive use project would potentially create upwards of 100,000+ acres of de facto wetlands in the heart of California's Sacramento Valley, a critically important part of the Pacific Flyway. In addition, the project would create much needed offstream water storage. Other benefits would include aquatic biodegradation of rice stubble (rather than burning stubble which creates air pollution problems) and sustaining the communities and economies that have become dependent on rice production.

Admittedly, this program would maintain rice production in California. But the intention is to secure permanent commitments from rice growers, in the form of conservation easements or other restrictions, to prohibit conversions to other land uses and to perpetually make these lands available for wetland management and offstream storage. The alternatives are to maintain the status quo or to attempt to purchase as much of this area as possible.

Maintaining the status quo provides no short term benefits, and, with the rapidly growing Central Valley and the unsuitability of rice ground for other agricultural uses, it is likely that the area will ultimately convert to residential development which would be an irreversible and devastating loss for waterfowl (these lands aren't defined as "wetlands" under federal laws that provide protection for such habitat).

The alternative of attempting to purchase significant acreage of ricelands is virtually impossible. Current land values exceed $2,000 per acre. Buying just 10,000 acres would cost at least $20 million and a 50,000 acre effort would require at least $100 million, if willing sellers could be found for that much ground. The recently completed Parrott Ranch acquisition encompassed 14,000 acres at a cost of $13.7 million and required unprecedented financial commitments from state, federal, and private sources. Buying land equivalent to the scale conceived in the conjunctive use program far exceeds realistic capabilities.

Faced with perilously diminished wetlands, and the consequent precipitous declines in waterfowl population, we need to design and implement quick, effective, and highly leveraged solutions.

Appendix A

BUDGET

• Hydrologic investigation	$75,000
• Biological investigation	$75,000
• Project Consultant/Coordinator (12 months)	$50,000
• Direct project costs (travel, phone, postage, etc.)	$15,000
TOTAL	$215,000

Chelsea

1. Issue is comprehensive planning for all water related resources
   a. Ag Conserv
   b. water transfer
   c. envir rehab
   d. drainage issues
   e. conjunctive use

HR429 should be a model for statewide planning — as a "comprehensive, long term approach to provide reliability for all sectors, water supply

It will be necessary to develop new water in the future but hopefully not through envir destructive facilities but through water transfer and conjunctive use